UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/600,691	06/20/2003	Katsuichi Osakabe	393032038300	6719

7590 12/07/2004

David L. Fehrman
Morrison & Foerster LLP
35th Floor
555 W. 5th Street
Los Angeles, CA 90013

EXAMINER	
DRULA, BRIAN F	

ART UNIT	PAPER NUMBER
2652	

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/600,691	OSAKABE ET AL.	
	Examiner	Art Unit	
	Brian F. Drula	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☒ Claim(s) 1, and 6-8 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 March 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1, 6, 7 and 8 are objected to because of the following informalities:

In regards to claim 1, line 10, claims 6 and 7, line 16, and claim 8, line 11, in the phrase " for irradiating the main beam to the spiral track with accompanying the pair of sub beams along opposite sides of the spiral track", the word "the" should go before "accompanying" rather than after to make better grammatical sense.

In regards to claim 1, line 11, claims 6 and 7, line 17, and claim 8, line 12, the word "apposite" should be "opposite".

In regards to claim 1, lines 18 and claim 8, line 18, the term "optical dick" should be "optical disk".

In regards to claims 6 and 7, line 34 the term "black round" is used, this should be replaced with "blank round".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (US/5734633) in view of Kurata et al. (US/5128914).

In regards to claim 1, Aoki et al. discloses an optical recording apparatus (figure 10) including a rotating section (9) provided for rotating an optical disk which is formed thereon with a guide groove to define a spiral track having a plurality of rounds (figure 12), an optical pickup (10) that has a light source for generating an optical beam, the optical pickup being operable for irradiating the main beam to the spiral track (column 9, lines 54-55), a servo section (13) that operates the optical pickup to enable the main beam to trace the spiral track (column 9, lines 59-60), a recording section (12) that modulates the main beam for recording of information onto the spiral track while the optical disk is rotated (column 9, lines 57-58), and a control section (36) that controls recording of the information each cycle the optical disk is rotated such that the recording of information is enabled to fill one round (0 to Nth sectors of the Mth track) of the spiral track and disabled to blank another round (after awaiting one rotation, recording and reproducing the succeeding information from the 0th sector of the (M+2)th track) of the spiral track so as to alternated the filled rounds and the blanked round (recording and reproduction of information is performed at alternate tracks) (figure 12) (column 10, lines 30-34).

Aoki et al. fails to disclose the optical pickup includes a diffractive grating for diffracting the optical beams to form a main beam and a pair of sub beams irradiating the pair of sub beams along opposite sides of the spiral track, and the servo section adjusting the optical pickup based on a tracking error signal derived for return lights of the sub beams reflected back from the optical disk.

Kurata et al. discloses an optical pickup apparatus (figure 1a) which includes a light source (1) and a diffractive grating (2) for diffracting the optical beam to form a main beam (A3) and a pair of sub beams (A1, A2) opposite with each other relative to the main beam and the sub beams irradiated along opposite sides of a track, and a tracking error signal is derived from the sub beams to adjust the optical pickup (column 6, lines 43-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus, optical pickup, and servo section as taught by Aoki et al. with the used of the diffraction grating to produce sub beams and the use of the sub beams as taught by Kurata et al. in order to accurately detect a tracking error signal with no offset to accurately use the servo section to adjust the optical pickup, as the tracking error signal is a signal from a reproduction circuit (signal detecting circuit), and to reduce the number of components needed in an optical system (column 4, lines 62-68).

In regards to claim 8, Aoki et al. discloses a method of recording information on an optical disk by section of an optical pickup (10) having a light source generating an optical beam, the method including a step of rotating the optical disk (column 7, lines 17-18) which is formed thereon with a guide groove to define a spiral track having a plurality of rounds (figure 12), a step of operating the optical pickup for irradiating the main beam to the spiral track (column 9, lines 54-55), a step of further operating the optical pickup to enable the main beam to trace the spiral track (column 9, lines 59-60), a step of modulating the main beam for recording of the information onto the spiral track

while the optical disk is rotated (column 9, lines 57-58), and controlling the recording of the information each cycle the optical disk is rotated such that the recording of the information is enabled to fill one round (0 to Nth sectors of the Mth track) of the spiral track and disable to blank another round (after awaiting one rotation, recording and reproducing the succeeding information from the 0th sector of the (M+2)th track) of the spiral track so as to alternate the filled rounds and the blanked rounds (recording and reproduction of information is performed at alternate tracks) (column 10, lines 30-35).

Aoki et al. fails to disclose the optical pickup includes a diffractive grating for diffracting the optical beams to form a main beam and a pair of sub beams opposite with each other relative to the main beam, irradiating the pair of sub beams along opposite sides of the spiral track, and adjusting the optical pickup based on a tracking error signal derived for return lights of the sub beams reflected back from the optical disk.

Kurata et al. discloses an optical pickup apparatus (figure 1a) which includes a light source (1) and a diffractive grating (2) for diffracting the optical beam to form a main beam (A3) and a pair of sub beams (A1, A2) opposite with each other relative to the main beam and the sub beams irradiated along opposite sides of a track, and a tracking error signal is derived from the sub beams to adjust the optical pickup (column 6, lines 43-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus, optical pickup, and operation of the optical pickup to enable the main beam to trace the spiral track as

taught by Aoki et al. with the used of the diffraction grating to produce sub beams and the use of the sub beams as taught by Kurata et al. in order to accurately detect a tracking error signal with no offset to accurately use the servo section to adjust the optical pickup, as the tracking error signal is a signal from a reproduction circuit (signal detecting circuit), and to reduce the number of components needed in an optical system (column 4, lines 62-68).

In regards to claim 3, Aoki et al. discloses the control section operates when the recording of information to a current round of the spiral track is finished for controlling the recording section to disable the main beam for one cycle of the rotation until the main beam reaches an end of a next round of the spiral track so as to blank the next round (column 10, lines 29-35).

In regards to claim 4, Aoki et al. discloses the control section controls the servo section and the recording section for performing a session of recording information by alternating the filled rounds and the blanked rounds, and performing an additional session of recording information selectively into the blanked rounds of the spiral track while skipping the filled rounds of the spiral track (column 11, lines 12-24).

In regards to claim 5, Aoki et al. discloses the recording section modulates an intensity of the optical beam according to information representative of an image for forming pits and lands along the spiral track to thereby draw the image on the optical disk (column 9, lines 57-58 and column 10, line 63).

3. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki in view of Kurata et al. and Fukinuki et al. (US/6246651).

In regards to claim 6, Aoki et al. discloses an optical recording apparatus for recording information on an optical disk including a rotating section (9) that is provided for rotating the optical disk (35) which is formed thereon with a guide groove to define a spiral track having a plurality of round (figure 12), an optical pickup (10) that has a light source for generating an optical beam, the optical pickup being operable for irradiating the main beam to the spiral track (column 9, lines 54-55), a servo section (13) that operates the optical pickup to enable the main beam to trace the spiral track (column 9, lines 59-60), a recording section (12) that is provided for receiving information, then generating a recoding waveform according to the received information, and modulating an intensity of the main beam based on the recording waveform so as to record the information onto the spiral track (column 9, lines 57-58, and column 11, lines 4-7), and a control section (36) for controlling either of the servo section or the recording section so as to alternate a filled round recorded with the information and a blank round not recorded with the information by suppressing the optical beam at least every one after another round (column 10, lines 30-34).

Aoki et al. fails to disclose a detecting section that is provided for detecting a rotation signal representative of a rotation speed of the rotating section, a regulating section that is provided for regulating the rotating section in response to the rotation signal, a diffractive grating included in the optical pickup for diffracting the optical beam to form a main beam and a pair of sub beams opposite with each other relative to the

main beam, irradiating the pair of sub beams along opposite sides of the spiral track, and a servo section for operating the optical pickup to enable the main beam to trace the spiral track based on a tracking error signal derived for return lights of the sub beams reflected back from the optical disk, and a timing section receptive of the rotation signal for outputting a timing signal each cycle the optical disk is rotated such that the timing signal indicates recording of the information into each round of the spiral track.

Kurata et al. discloses an optical pickup apparatus (figure 1a) which includes a diffractive grating (2) for diffracting the optical beam to form a main beam (A3) and a pair of sub beams (A1, A2) opposite with each other relative to the main beam and the sub beams irradiated along opposite sides of a track, and a tracking error signal is derived from the sub beams to adjust the optical pickup (column 6, lines 43-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus, optical pickup, and servo section for operating the optical pickup to enable the main beam to trace the spiral track as taught by Aoki et al. with the used of the diffraction grating to produce sub beams and the use of the sub beams as taught by Kurata et al. in order to accurately use the servo section to adjust the optical pickup, as the tracking error signal is a signal from a reproduction circuit (signal detecting circuit), and to reduce the number of components needed in an optical system (column 4, lines 62-68).

Fukinuki et al. discloses an optical disk apparatus (figure 1, 100) including a detecting section (4, 5) that is provided for detecting a rotation signal representative of a rotation speed of the station section, a regulating section (4, 101) that is provided for

regulating the rotating section in response to the rotation signal, and a timing section (101a) receptive of the rotation signal for outputting a timing signal each cycle the optical disk is rotated such that the timing signal indicates recording of the information into each round of the spiral track (column 7, lines 53-56 and column 8, lines 9-21), and the control section (101) is responsive to the timing signal for controlling the servo section (12) or the recording section (9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus as taught by Aoki et al. with the detecting section, regulating section, and timing section as taught by Fukinuki et al. in order to provide a stable write operation of the optical pickup (column 1, lines 46-47).

In regards to claim 7, Aoki et al. discloses an optical recording apparatus for recording information on an optical disk including a rotating section (9) that is provided for rotating the optical disk (35) which is formed thereon with a guide groove to define a spiral track having a plurality of round (figure 12), an optical pickup (10) that has a light source for generating an optical beam, the optical pickup being operable for irradiating the main beam to the spiral track (column 9, lines 54-55), a servo section (13) that operates the optical pickup to enable the main beam to trace the spiral track (column 9, lines 59-60), a recording section (12) that is provided for receiving a signal representative of the information, then adjusting a recoding waveform according to the received information, and modulating an intensity of the main beam based on the adjusted recording waveform so as to record the information (column 9, lines 57-58, and

column 11, lines 4-7), and a control section (36) for controlling either of the servo section or the recording section so as to alternate a filled round recorded with the information and a blank round not recorded with the information by suppressing the optical beam at least every one after another round (column 10, lines 30-34).

Aoki et al. fails to disclose a detecting section that is provided for detecting a rotation signal representative of a rotation speed of the rotating section, a regulating section that is provided for regulating the rotating section in response to the rotation signal, a diffractive grating included in the optical pickup for diffracting the optical beam to form a main beam and a pair of sub beams opposite with each other relative to the main beam, irradiating the pair of sub beams along opposite sides of the spiral track, and a servo section for operating the optical pickup to enable the main beam to trace the spiral track based on a tracking error signal derived from return lights of the sub beams reflected back from the optical disk, and a timing section receptive of the rotation signal for outputting a timing signal each cycle the optical disk is rotated such that the timing signal indicates recording of the information into each round of the spiral track.

Kurata et al. discloses an optical pickup apparatus (figure 1a) which includes a light source (1) and a diffractive grating (2) for diffracting the optical beam to form a main beam (A3) and a pair of sub beams (A1, A2) opposite with each other relative to the main beam and the sub beams irradiated along opposite sides of a track, and a tracking error signal is derived from the sub beams to adjust the optical pickup (column 6, lines 43-45).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus, optical pickup, and servo section for operating the optical pickup to enable the main beam to trace the spiral track as taught by Aoki et al. with the used of the diffraction grating to produce sub beams and the use of the sub beams as taught by Kurata et al. in order to accurately use the servo section to adjust the optical pickup, as the tracking error signal is a signal from a reproduction circuit (signal detecting circuit), and to reduce the number of components needed in an optical system (column 4, lines 62-68).

Fukinuki et al. discloses an optical disk apparatus (figure 1, 100) including a detecting section (4, 5) that is provided for detecting a rotation signal representative of a rotation speed of the station section, a regulating section (4, 101) that is provided for regulating the rotating section in response to the rotation signal, and a timing section (101a) receptive of the rotation signal for outputting a timing signal each cycle the optical disk is rotated such that the timing signal indicates recording of the information into each round of the spiral track (column 7, lines 53-56 and column 8, lines 9-21), and the control section (101) is responsive to the timing signal for controlling the servo section (12) or the recording section (9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus as taught by Aoki et al. with the detecting section, regulating section, and timing section as taught by Fukinuki et al. in order to provide a stable write operation of the optical pickup (column 1, lines 46-47).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. in view of Kurata et al. as applied to claim 1 above, and further in view of Ogasawara (US/5500840).

Aoki et al. fails to disclose the control section operates when the recording of the information to a current round of the spiral track is finished for controlling the servo section to jump the main beam from an end of the current round to an end of a next round of the spiral track so as to blank the next round.

Ogasawara discloses an optical disk apparatus with a track jumping means to move a laser beam spot from on track to another in response to a command sent from a controlling unit (column 5, lines 9-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical recording apparatus as taught by Aoki et al. with the track jumping method as taught by Ogasawara in order to shorten a processing time when recording to a desired region on an optical disk (column 2, lines 19-23).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aoki et al. (US/5774439) discloses an optical disk recording and reproducing apparatus that records information on an optical disk, including recording information on alternate tracks to prevent any deterioration due to neighbor erasure.

Kim (US/6295261) discloses a method an apparatus for controlling the revolution speed of a spindle motor in an optical disk drive in response to a generated signal value.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian F. Drula whose telephone number is (703) 605-1157. The examiner can normally be reached on Mon. - Fri., 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian F. Drula
Patent Examiner
AU2652

HOA T. NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600
11/30/04